

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

Claims 1-49. (cancelled)

50. (new) An excimer or molecular fluorine laser system, comprising:  
first and second discharge chambers each being filled with a gas mixture, each of said first and second discharge chambers containing a pair of electrodes for energizing the gas mixture and outputting an optical pulse;  
circuitry for providing separate, sequential excitation pulses to said first and second discharge chambers; and  
a jitter compensation circuit, said circuit receiving an input corresponding to a laser parameter which exhibits pulse to pulse variations, said compensation circuit generating a variable delay signal in response to the input and supplying the signal to said circuitry to control the relative timing of the excitation pulses delivered to the first and second discharge chambers on a pulse to pulse basis.
51. (new) A laser system as recited in claim 50 wherein said laser parameter is selected from one or more of the voltage on a storage capacitor, a reset current and a core magnetization.
52. (new) A laser system as recited in claim 51, wherein the voltage on the storage capacitor is measured with a differential high voltage probe.
53. (new) A laser system as recited in claim 50, wherein said jitter compensation circuit includes a fast analog circuit.
54. (new) A laser system as recited in claim 50, wherein the circuitry includes a separate pulser for each discharge chamber.

55. A laser system as recited in claim 50, wherein the circuitry includes a common pulser system and the compensation circuit compensates for jitter between channels of the common pulser.

56. (new) A laser system as recited in claim 50, further including a feedback loop to compensate for jitter caused by slower, non-pulse to pulse changes.

57. (new) A laser system as recited in claim 56, wherein said feedback loop monitors the delay between the excitation of the two discharges and generates a signal in response thereto that is supplied to the compensation circuit and is used in generating the variable delay signal.

58. (new) A laser system as recited in claim 50, wherein the first discharge chamber functions as an oscillator and the second discharge chamber functions as an amplifier to amplify the optical pulses generated by the first discharge chamber.

59. (new) An excimer or molecular fluorine laser system, comprising:

a master oscillator including a discharge chamber filled with a gas mixture and containing a pair of electrodes for energizing the gas mixture and outputting an optical pulse;

a power amplifier including a discharge chamber filled with a gas mixture and containing a pair of electrodes for energizing the gas mixture for amplifying the optical pulses generated by the oscillator;

circuitry for providing separate, sequential excitation pulses to said oscillator and amplifier; and

a jitter compensation circuit, said circuit receiving first inputs corresponding to a laser parameter which exhibits pulse to pulse variations and second inputs corresponding to slower, non-pulse to pulse variations, said compensation circuit generating a variable delay signal in response to said first and second inputs and supplying the signal to said circuitry to control the relative timing of the excitation pulses delivered to the oscillator and the amplifier.

60. (new) A laser system as recited in claim 59, wherein said laser parameter is selected from one or more of the voltage on a storage capacitor, a reset current and a core magnetization.

61. (new) A laser system as recited in claim 59, wherein the circuitry includes a separate pulser for the oscillator and the amplifier.

62. (new) A laser system as recited in claim 59, wherein the circuitry includes a common pulser system and the compensation circuit compensates for jitter between channels of the common pulser.

63. (new) A laser system as recited in claim 56, wherein said compensation circuit monitors the delay between the excitation of the oscillator and the amplifier and is used to generate said second inputs.